

10/522477  
DT01 Rec'd PCT/PT 26 JAN 2005

**Amendments to the Claims**

The following listing of claims replaces all prior versions of the claims and all prior listings of the claims in the present application.

1-47. (canceled)

48. (new) A tyre for a vehicle wheel, comprising:

at least one structural element made of a crosslinked elastomeric material;

wherein the crosslinked elastomeric material comprises an elastomeric composition, and

wherein the elastomeric composition comprises:

(a) at least one diene elastomeric polymer;

(b) at least one paraffin wax; and

(c) at least one polymer of at least one C<sub>3</sub>-C<sub>24</sub>  $\alpha$ -olefin; and

wherein the at least one polymer (c) has a number average molecular weight not higher than 10,000.

49. (new) The tyre of claim 48, comprising:

a carcass structure;

a belt structure applied in a circumferentially external position relative to the carcass structure;

a tread band superimposed circumferentially on the belt structure; and

a pair of sidewalls applied laterally on opposite sides relative to the carcass structure;

wherein the carcass structure comprises at least one carcass ply shaped in a toroidal configuration,

wherein opposite lateral edges of the at least one carcass ply are associated with respective bead wires,

wherein each bead wire is enclosed in a respective bead,

wherein the belt structure comprises at least one belt strip, and

wherein the pair of sidewalls is formed by the elastomeric composition.

50. (new) The tyre of claim 48, wherein the at least one polymer (c) is a polymer of at least one C<sub>5</sub>-C<sub>18</sub>  $\alpha$ -olefin.

51. (new) The tyre of claim 48, wherein the at least one polymer (c) has a number average molecular weight not higher than about 5,000.

52. (new) The tyre of claim 48, wherein the at least one polymer (c) has a number average molecular weight not higher than about 3,000.

53. (new) The tyre of claim 48, wherein the at least one polymer (c) has a number average molecular weight of at least about 300.

54. (new) The tyre of claim 48, wherein the at least one polymer (c) has a number average molecular weight of at least about 400.

55. (new) The tyre of claim 48, wherein the at least one polymer (c) has a number average molecular weight of at least about 500.

56. (new) The tyre of claim 48, wherein the at least one polymer (c) has a polydispersity value of at least about 2.

57. (new) The tyre of claim 48, wherein the at least one polymer (c) has a polydispersity value not higher than about 20.

58. (new) The tyre of claim 48, wherein the at least one polymer (c) has a polydispersity value not higher than about 12.

59. (new) The tyre of claim 48, wherein the at least one polymer (c) has a melting point or a softening point of at least about 30° C.

60. (new) The tyre of claim 48, wherein the at least one polymer (c) has a melting point or a softening point not higher than about 120° C.

61. (new) The tyre of claim 48, wherein the at least one polymer (c) has the following degree of branching: from 1 mol% to 20 mol% of methyl groups with respect to a total number of carbon atoms.

62. (new) The type of claim 48, wherein the at least one polymer (c) has the following degree of branching: from 2 mol% to 10 mol% of methyl groups with respect to a total number of carbon atoms.

63. (new) The type of claim 48, wherein the at least one polymer (c) has the following degree of branching: from 80 mol% to 99 mol% of methylene groups (secondary carbon atoms) with respect to a total number of carbon atoms.

64. (new) The type of claim 48, wherein the at least one polymer (c) has the following degree of branching: from 90 mol% to 95 mol% of methylene groups (secondary carbon atoms) with respect to a total number of carbon atoms.

65. (new) The type of claim 48, wherein the at least one polymer (c) has the following degree of branching: from 1 mol% to 20 mol% of tertiary carbon atoms with respect to a total number of carbon atoms.

66. (new) The type of claim 48, wherein the at least one polymer (c) has the following degree of branching: from 2 mol% to 10 mol% of tertiary carbon atoms with respect to a total number of carbon atoms.

67. (new) The type of claim 48, wherein the at least one polymer (c) has the following degree of branching: from 0 mol% to 2 mol% of quaternary carbon atoms with respect to a total number of carbon atoms.

68. (new) The type of claim 48, wherein the at least one polymer (c) has the following degree of branching: from 0 mol% to 1 mol% of quaternary carbon atoms with respect to a total number of carbon atoms.

69. (new) The type of claim 48, wherein the at least one polymer (c) has a crystallinity degree of from 30% to 99%.

70. (new) The type of claim 48, wherein the at least one polymer (c) has a crystallinity degree of from 50% to 90%.

71. (new) The type of claim 48, wherein the at least one polymer (c) is saturated or unsaturated and comprise cyclic moieties.

72. (new) The type of claim 48, wherein the at least one polymer (c) comprises cyclic moieties.

73. (new) The tyre of claim 48, wherein the at least one polymer (c) is present in the elastomeric composition in an amount of from 0.1%-by-weight to 10%-by-weight with respect to a weight of the at least one paraffin wax (b).

74. (new) The tyre of claim 48, wherein the at least one polymer (c) is present in the elastomeric composition in an amount of from 0.5%-by-weight to 5%-by-weight with respect to a weight of the at least one paraffin wax (b).

75. (new) The tyre of claim 48, wherein the at least one paraffin wax (b) comprises linear saturated hydrocarbons, branched saturated hydrocarbons, or linear and branched saturated hydrocarbons.

76. (new) The tyre of claim 48, wherein the at least one paraffin wax (b) comprises a mixture of linear and branched saturated hydrocarbons, and  
wherein a content of linear saturated hydrocarbon is at least 40%-by-weight.

77. (new) The tyre of claim 48, wherein the at least one paraffin wax (b) comprises a mixture of linear and branched saturated hydrocarbons, and  
wherein a content of linear saturated hydrocarbon is of from 55%-by-weight to 80%-by-weight.

78. (new) The tyre of claim 75, wherein the linear saturated hydrocarbons comprise:

at least from 20 to 29 carbon atoms in an amount of from 10%-by-weight to 40%-by-weight;

at least from 30 to 35 carbon atoms in an amount of from 20%-by-weight to 65%-by-weight; and

at least from 36 to 42 carbon atoms in an amount of from 10%-by-weight to 50%-by-weight.

79. (new) The tyre of claim 48, wherein the at least one paraffin wax (b) is present in the elastomeric composition in an amount of from 0.5 phr to 10 phr.

80. (new) The tyre of claim 48, wherein the at least one paraffin wax (b) is present in the elastomeric composition in an amount of from 1.5 phr to 4 phr.

81. (new) The tyre of claim 48, wherein the at least one diene elastomeric polymer (a) has a glass transition temperature ( $T_g$ ) below 20° C.

82. (new) The tyre of claim 81, wherein the at least one diene elastomeric polymer (a) comprises one or more of: cis-1,4-polyisoprene; 3,4-polyisoprene; polybutadiene; optionally halogenated isoprene/isobutene copolymers; 1,3-butadiene/acrylonitrile copolymers; styrene/1,3-butadiene copolymers; styrene/isoprene/1,3-butadiene copolymers; and styrene/1,3-butadiene/acrylonitrile copolymers.

83. (new) The tyre of claim 48, wherein the elastomeric composition comprises at least one elastomeric polymer of one or more monoolefins with an olefinic comonomer or derivatives thereof (a').

84. (new) The tyre of claim 83, wherein the at least one elastomeric polymer (a') comprises one or more of: ethylene/propylene copolymers (EPR) or ethylene/propylene/diene copolymers (EPDM); polyisobutene; butyl rubbers; and halobutyl rubbers.

85. (new) The tyre of claim 48, wherein at least one reinforcing filler is present in the elastomeric composition in an amount of between 0.1 phr and 120 phr.

86. (new) The tyre of claim 85, wherein the at least one reinforcing filler comprises carbon black.

87. (new) The tyre of claim 85, wherein the at least one reinforcing filler comprises silica.

88. (new) An elastomeric composition, comprising:

(a) at least one diene elastomeric polymer;

(b) at least one paraffin wax; and

(c) at least one polymer of at least one C<sub>3</sub>-C<sub>24</sub>  $\alpha$ -olefin;



wherein the at least one polymer (c) has a number average molecular weight not higher than 10,000.

89. (new) The elastomeric composition of claim 88, wherein the at least one diene elastomeric polymer (a) has a glass transition temperature ( $T_g$ ) below 20° C.

90. (new) The elastomeric composition of claim 88, wherein the at least one paraffin wax (b) comprises linear saturated hydrocarbons, branched saturated hydrocarbons, or linear and branched saturated hydrocarbons.

91. (new) The elastomeric composition of claim 88, wherein the at least one polymer (c) is a polymer of at least one  $C_5$ - $C_{18}$   $\alpha$ -olefin.

92. (new) The elastomeric composition of claim 88, wherein at least one reinforcing filler is present in an amount of between 0.1 phr and 120 phr.

93. (new) The elastomeric composition of claim 92, wherein the at least one reinforcing filler comprises carbon black, silica, or carbon black and silica.

94. (new) A crosslinked elastomeric manufactured product obtained by crosslinking an elastomeric composition, wherein the elastomeric composition comprises:

(a) at least one diene elastomeric polymer;

(b) at least one paraffin wax; and

(c) at least one polymer of at least one C<sub>3</sub>-C<sub>24</sub>  $\alpha$ -olefin; and

wherein the at least one polymer (c) has a number average molecular weight not higher than 10,000.